

RADIATIVE CORRECTIONS FOR EXPERIMENTALISTS

In the context of the ongoing preparations for the commissioning of LEP and the ensuing physics issues, the TH Division plans to organize a short lecture course on radiative corrections around the Z^0 resonance.

The lectures aim at deriving a physically relevant quantity (for which the Z^0 line shape is taken as an example) starting from first principles (the Lagrangian of the Standard Model). They are aimed at an audience of experimentalists and will therefore be as pedagogical as possible. After attending the lectures experimentalists should in principle be able to appreciate the theoretical ingredients that enter into the predictions for many experimentally relevant observables at LEP. There will be ample time for questions and discussion.

The lecture schedule is as follows :

LECTURE 1 – Introduction and renormalization

Lecturer W. HOLLIK / CERN-TH
Topic The Lagrangian of the standard model; general structure of the theory, renormalization; Δr .
Time Tuesday 30 May at 14.30 hrs until 16.30 hrs
Place Auditorium

LECTURE 2 – Weak corrections in $e^+e^- \rightarrow \mu^+\mu^-$

Lecturer D. BARDINE / JINR, Dubna
Topic Introduction to weak corrections in light fermion pair production; renormalization
Time Thursday 1 June at 14.30 hrs until 16.30 hrs
Place Auditorium

LECTURE 3 – QED corrections in $e^+e^- \rightarrow \mu^+\mu^-$

Lecturer B. WARD / Tennessee & SLAC
Topic Introduction to QED corrections in light fermion pair production; multiple bremsstrahlung; exponentiation
Time Friday 2 June at 11.00 hrs until 13.00 hrs
Place Auditorium

LECTURE 4 – The Z^0 line shape

Lecturer T. RIEMANN / DAW, Berlin
Topic Numerical evaluation of the effects discussed in the previous lectures; total cross-sections around the Z^0 resonance
Time Friday 2 June at 16.30 hrs until 18.30 hrs
Place Auditorium

SEMINARS SEMINAIRES

Monday 29 May

EF SEMINAR

at 11.00 hrs – EF Conference Room
bldg 13, 2-005

Architectural design of a new VLSI FASTBUS integrated master

by Alessandro MARCHIORO / CERN-EF

The performance and flexibility of the present generation of Fastbus master modules can be greatly enhanced by using VLSI technology for the integration of such modules. We will describe architec-

tural aspects and design trade-offs involved in building a new high performance VLSI coprocessor for a RISC cpu. The system design and integration aspects will be covered, with results on the preferred architecture. The design methodology used will also be discussed with emphasis on the simulation aspects and top-down approach to the system integration. The trade-offs involved in a future single chip, fully integrated design, where the FASTBUS master port is merged with the integer unit core and native FASTBUS instruction are added to the instruction set, will be discussed.

Monday 29 May

PROTON SYNCHROTRON AND SYNCHRO-CYCLOTRON COMMITTEE

Open session

at 14.00 hrs – Auditorium

1. *Potential move of ISOLDE to PS Booster*
- machine aspects (B. Allardyce)
- experimental aspects (H. Ravn).
2. *Status report on experiment PS 200 – A measurement of the gravitational acceleration of the antiproton (Los Alamos Nat. Lab. - NASA Ames Research Center - Rice University - Texas A&M University; PSCC/89-21/M302; M.H. Holzschneider).*
3. *Progress report on Expt. PS 196 – Precision comparison of $\bar{p}$ and p masses in a Penning Trap (Harvard - Mainz - Washington - Fermilab; PSCC/89-7/M297; 89-19/M301; G. Gabrielse).*
4. *Proposal : ISOL technique for nuclear medicine (CERN - Dresden - Jena; PSCC/89-17/P119; 89-18/S119; G.J. Beyer).*
5. *Progress report and beam time request for Proposal P108 – Measurements of wake-riding electrons in antiproton-carbon-foil collisions (Tokyo - Aarhus - CERN; PSCC/88-32/P108 Add. 1; PSCC/89-6/P108 Add. 2; Y. Yamazaki).*
6. *Proposal : High resolution spectroscopy of X-rays from antiprotonic hydrogen and helium isotopes using a crystal spectrometer (Jülich - PSI Villigen - Aarhus - Islamabad - Mississippi; PSCC/89-11/P117; 89-12/S117; D. Gotta).*
7. *The Canadian KAON Factory at TRIUMF – A brief report on the project (A. Astbury, Univ. of Victoria).*

Closed session

Tuesday 30 May at 09.00 hrs in the 6th floor Conference Room, Main Building

Tuesday 30 May

TECHNICAL PRESENTATION

at 09.00 hrs – bldg 6, 2-004

Daisy Systems AG (CH) Seminar on CAE-Systems of Daisy Cadnetix (USA); CDX 9630, workstation with Schematic capture and Analog Simulation – CDX 56.000 SP, workstation with PCB – Layout Software.

Application : simulation of Analog Boards and Components – Design of PCBs

09.00 hrs *Presentation of the Cadnetix Concept*

10.00 hrs *Presentation and demonstration of the Analog-Simulator (Saber)*

14.00 hrs *Presentation and demonstration of the PCB-Layout-solution*

Language : English

Information : M. Diraison / FI / 4585

Wednesday 31 May

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

**N = 2 superconformal models,
Landau-Ginsburg Hamiltonians and the**

epsilon-expansion

by Peter WEST / CERN

After a review of Landau-Ginsburg Hamiltonians, critical phenomena and the epsilon-expansion, the anomalous dimensions of a class of operators, operator product expansions and the central charge, c , are calculated in a family of $N = 2$ super-symmetric two-dimensional Landau-Ginsburg models. These results allow the identification of these theories with $N = 2$ minimal superconformal models. A key role is played by the $N = 2$ non-renormalization theorem.

Wednesday 31 May*

EP SEMINAR

at 16.30 hrs – Auditorium

The CDF Silicon Vertex Detector

by C. HABER / LBL

A silicon microstrip vertex detector is being constructed for the CDF detector at the Fermilab $p\bar{p}$ collider. This device will have its first run in early 1991 and will allow the tagging of long-lived particles on an individual event basis. The mechanical and electronic design of the detector will be described in the talk and a status report on prototyping and construction will be given.

* Please note unusual day!

Thursday 1 June

ISOLDE COMMITTEE

Open session

Thursday 1 June at 13.00 hrs

in the DD Auditorium, bldg 31-3-005

1. *Introductory remarks (B. Jonson)*
2. *ISOLDE operation in 1989 (G. Weyer)*
3. *Report on target tests (H. Ravn)*
4. *Potential move of ISOLDE to the PS-Booster*
a) *Machine aspects (B.W. Allardyce)*
b) *Experimental aspects (H. Ravn)*
5. *Status Report IS120 and Proposal : The determination of static nuclear moments and other nuclear structure parameters at NICOLE (Bonn - CERN - Daresbury - Delft - Gent - Louvain - Lyon - München - Orsay - Oxford - Paris - Strasbourg; IP-60; N. Stone)*
6. *Proposal : Fabrication of a ^{22}Na target (CERN - Münster - Bochum - Caltech; IP-59; C. Rolfs)*
7. *Proposal : Complete beta-delayed one- and two proton emission study of ^{22}Al (Berkeley - Jyväskylä - Bonn - Manchester; IP-58; D.M. Moltz)*
8. *Status Report IS01-26 and Proposal : Determination of quadrupole deformation of neutron-rich $A \approx 100$ nuclei (Mainz - Gent - Zagreb; IP-62; G. Lhersonneau)*

9. *Proposal : Measurement of the quadrupole moment of the exotic ^{11}Li nucleus (Mainz - Marburg - CERN; IP-61; E. Arnold)*
10. *Status Report IS01-32 and Proposal: Microscopical studies of structural and electronic properties of semiconductors (Konstanz - Erlangen; IP- 56 Add. 1; M. Deicher)*
11. *Status Report : PAC spectrometer for ISOLDE (T. Butz)*
12. *Any other business*

Closed session

Friday 2 June at 08.30 hrs
in the DG Conference Room, bldg 60, 6th floor

Monday 5 June

EP SEMINAR

at 16.30 hrs – Auditorium

A measurement of low- p_t prompt-electron production at the $p\bar{p}$ collider using a RICH counter

by K. FRANSSON / University of Uppsala

A Ring Imaging Cherenkov (RICH) counter installed in one of the forward spectrometer sectors of the UA2 detector has been used for electron identification. A total hadron rejection of better than 10^5 has been achieved. In the p_t region of 0.9 - 1.5 GeV the observed ratio of prompt electrons to charged hadrons was $(2.04 \pm 1.41 \text{ stat.} \pm 0.64 \text{ sys.})10^{-4}$. In this p_t region semileptonic decays of charmed particles are expected to dominate. An estimate of the total cross-section for open-charm production at $\sqrt{s} = 630 \text{ GeV}$ will be given.

Tuesday 6 June

LEP EXPERIMENTS COMMITTEE

Open session

at 09.00 hrs – Auditorium

09.00-09.10 *Introductory remarks*
by C. Rubbia

09.10-10.10 *Physics at the Z^0 -pole : The expected*
by G. Altarelli

10.10-11.10 *Physics at the Z^0 -pole : The unexpected*
by C. Verzegnassi

11.10-11.30 *Coffee break*

11.30-12.30 *Event generators for LEP*
by R. Kleiss

12.30-13.00 *News from SLC*
by R. Taylor

Lunch

14.00-14.45 *Status of LEP*
by E. Picasso

Comments from experiments on the first phase of LEP operation

14.45-15.00 *ALEPH*

15.00-15.15 *DELPHI*

15.15-15.30 *OPAL*

15.30-15.45 *L3*

15.45-16.15 *Tea break*

16.15-17.00 *Memorandum on polarized electro-production at LEP (LEPC 89-10/M88; L. Dick)*

17.00-17.20 *Search for highly ionizing particles in e^+e^- collisions (Bologna - Carleton/ CERN - Harvard - Montreal collaboration; LEPC 89-9/P5; J.L. Pinfold)*

Closed session

Wednesday 7 June

at 09.00 hrs – Conference Room 6th floor, Administration building

Mardi 6 juin

PRESENTATION

10.30 h; 14.00 - 16.00 h – DD Amphithéâtre
bldg 31, 2-005

La Société ADAS Electronique

par J.-F. FROISSART

Wednesday 7 June

DD SEMINAR

at 10.00 hrs* – DD Auditorium
bldg 31, 3-005

High performance linear algebra kernels and their applications

by Phuong VU / Cray Research, Mendota Heights

* Please note the unusual time!

Wednesday 7 June

PS SEMINAR

at 11.00 hrs – PS Auditorium

Accelerator operations at Fermilab

by E. HARMS & B. HANNA / FNAL

Wednesday 7 & Thursday 8 June

PRESENTATION

Presentation : Wednesday 7 June
14.00 to 17.00 hrs

Demonstration : Thursday 8 June
9.00 to 12.00 hrs

DD Auditorium, bldg. 31, 3-005

Ardent technology seminar : Titan and Dore

by Gordon BELL / Vice President of Engineering, Ardent Computer, USA

Thursday 8 June*

SPECIAL PS SEMINAR

at 15.30 hrs – Council Chamber

Cyclotron maser cooling of electron and ion beams

by Hidetsugu IKEGAMI / Research Centre for Nuclear Physics, University of Osaka

* Please note the unusual day, place and time!

TRAINING AND EDUCATION ENSEIGNEMENT

ENSEIGNEMENT GENERAL Tél. 2844-5811

Jeudi 1 juin

de 13.00 h à 13.30 h – Amphithéâtre

Science pour tous

par R. CARRERAS

Mardi 6 juin

LES SCIENCES AUJOURD'HUI

à 20.00 h précises – Amphithéâtre
(jusqu'à environ 22.00 h)

par R. CARRERAS

Rafel Carreras, responsable du programme d'Enseignement général au CERN, commentera et expliquera un choix d'articles parus récemment dans des revues scientifiques, et qui couvrent l'ensemble des sciences physiques et biologiques ainsi que certains aspects des relations science-société. Une attention particulière est portée au langage et aux notions utilisés afin que les explications et les commentaires soient accessibles aux personnes n'ayant pas de formation scientifique.

Entrée libre

(Please note that the lecture will be given in FRENCH)

Service des Relations Publiques
Tél. 2722

ACADEMIC TRAINING Tel. 2844-3364

29, 30, 31 May & 1 June

11.00 to 12.00 hrs – Auditorium

Antimatter

by J. S. BELL / CERN-TH & H. POTH /
KfK, Karlsruhe

Friday 9 June

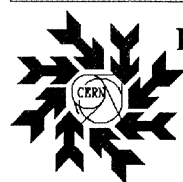
PRESENTATION

10.00-12.00 hrs & 14.00-16.00 hrs

DD Auditorium, bdg 31, 3-005

VMEbus and VXIbus modules

by J. FRASER / Product Marketing Manager
& J. FOWLIE / Senior Applications Engineer /
Burr-Brown



ENSEIGNEMENT TECHNIQUE TECHNICAL TRAINING

Tél. Secrétariat : 44.60

June 5, 1989 - Main Auditorium
From 9 h.00 to 12 h.00 and 14 h.00 to 16 h.00

CAE IN ELECTRONICS

by Dr. Lawrence ODESS
Israel Aircraft Industries

- CAE : what ? why ? how ?
- New concepts in electronics development
the various steps from conception to manufacture - the use of databases throughout all the design phases - tests philosophy - top down design approach - reduction of number of design cycles.
- New technologies
why design your own integrated circuit ? - alternative solutions : PLD, gate arrays, standard cells, full custom - characteristics of ASIC's (performances, volume of production and design cycles, analog ASIC) - CAE techniques - dangers to be avoided.
- New development tools
trends in the industrial tools - compatibility between those products (EDIF, VHDL, etc.) - use and limitations of PC's - use of main frames - the role of the workstation - integrated CAE facility for a large and diverse community of designers - how to get started.